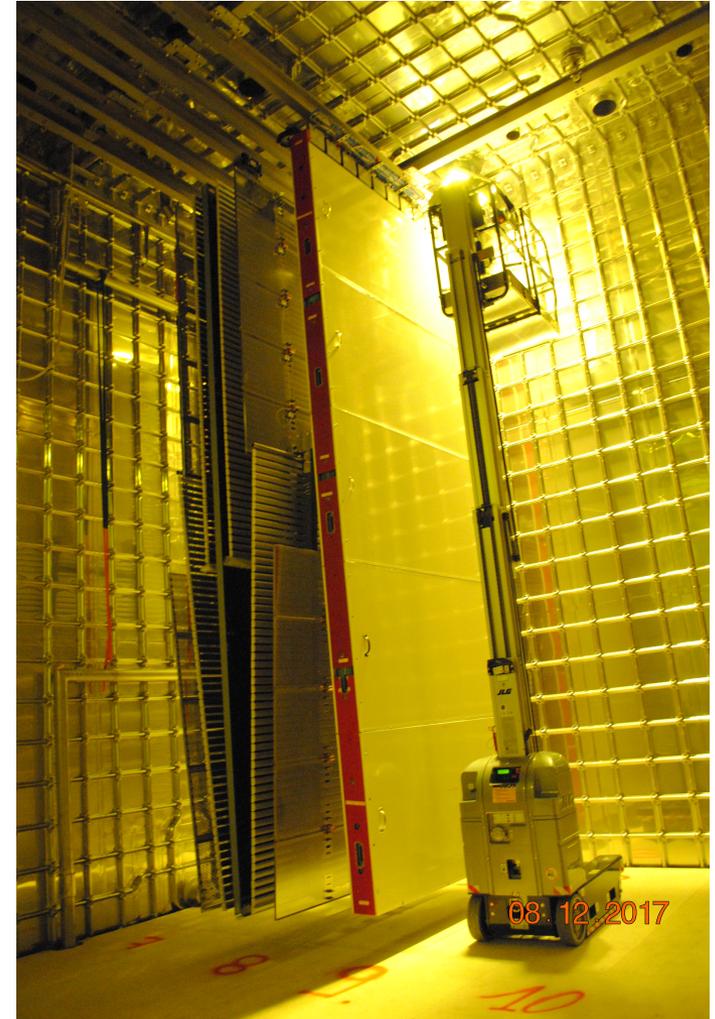


ProtoDUNE-SP

Update since the October 6 meeting

Christos Touramanis
DUNE monthly meeting
8 December 2017



UNIVERSITY OF
LIVERPOOL



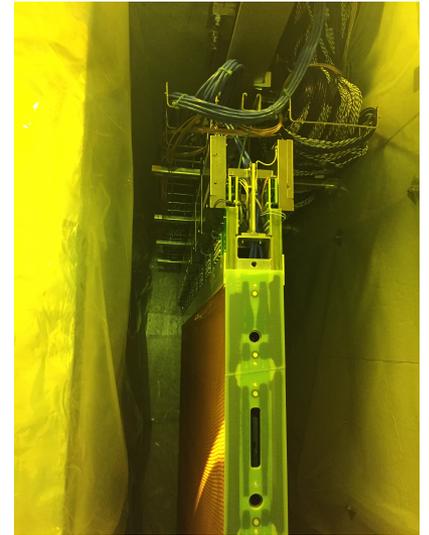
Two months of great progress

- APAs:
 - #1 inside Cryostat
 - #2 enter Cold Box & warm tests next week
 - #3 fully wired @DL; expected at CERN 8 January
 - #4 @PSL 50% done; expected at CERN mid February
 - #6 expected at CERN mid April
- CPAs, FCs: 1 of 3 assemblies inside cryostat; all available at CERN
- End Walls: all available at CERN
- Electronics production: progressing well
- Cold Box operation and results: resounding success
- DAQ: excellent progress, on track
- Beam request: 7 weeks, submitted to CERN

APA #1

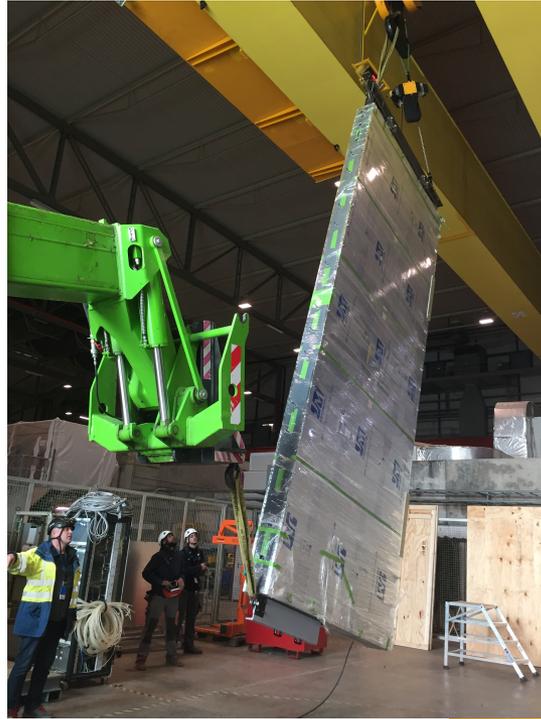
- Warm tests in the Cold Box:
 - Validated “clean power” and the full grounding scheme
 - Identified and eliminated external noise sources
 - Photon Detector readout fully integrated in DAQ
 - CE/WIBs read out remotely
- Cold tests:
 - Stable at -100 C at the top (CE); -150 C at the bottom
 - 50 degrees lower at the bottom
 - No new noise sources, met CE noise targets (see next talk), no CE/PDS interference
- After the Cold Box
 - A short was fixed; all bias voltages tested OK
 - Two CR boards changed for 3 wires that lost connection below -100 C
 - Wire tensions checked, no change after cold test

APA #1: now in the cryostat

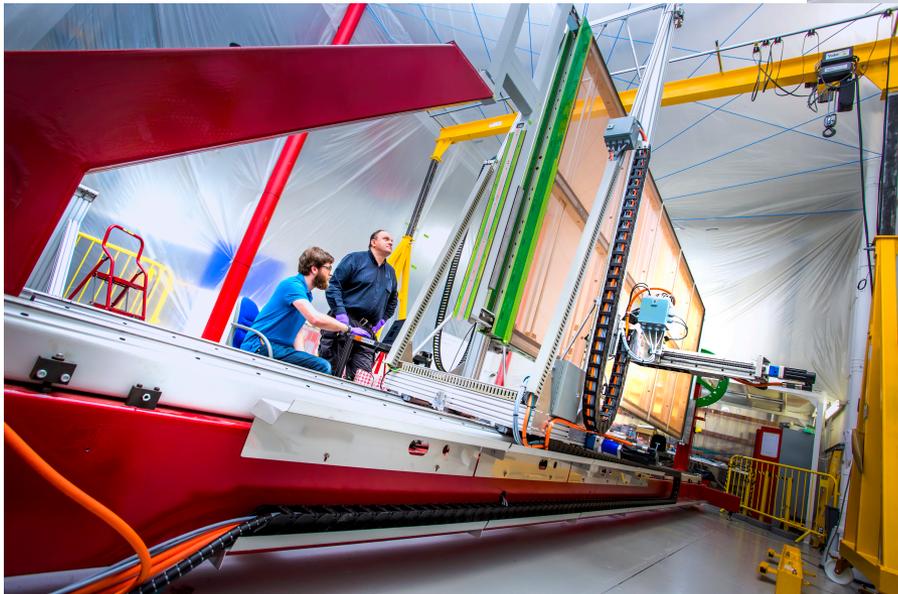


APA #2

- Lifted into the Clean Room on November 29
- As of today:
 - Frame survey, wire tensions, visual checks and photos done
 - All PD bars and half the PD cables installed
 - Half the CE boxes installed and tested
- Next Tuesday move into Cold Box
- **Transport Box to Cold Box: 2 weeks**
- Warm tests before Christmas
- Cold tests in early January

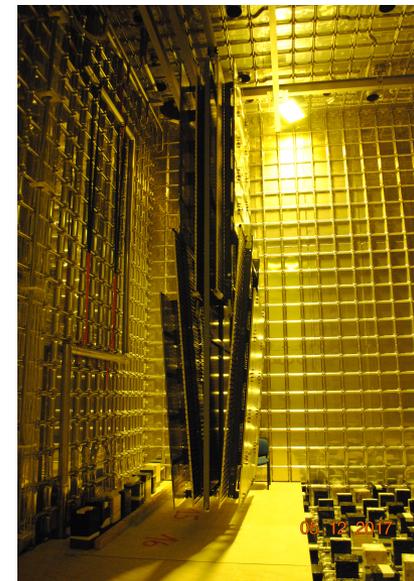
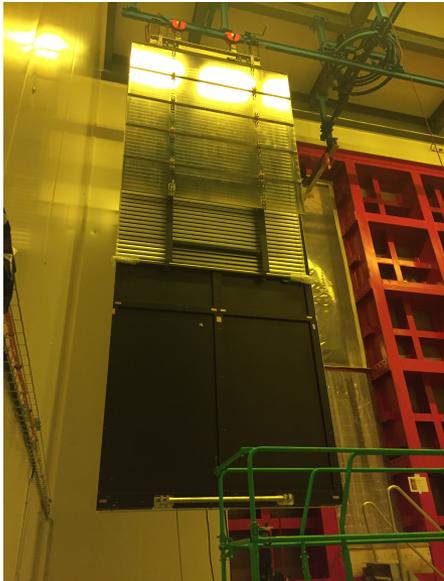
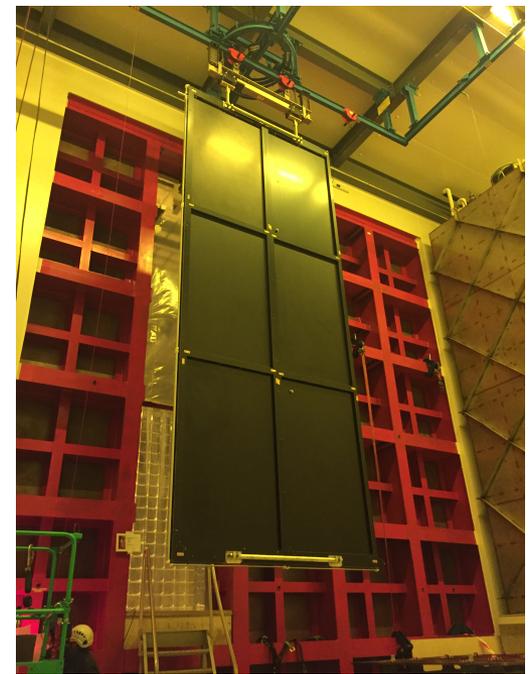
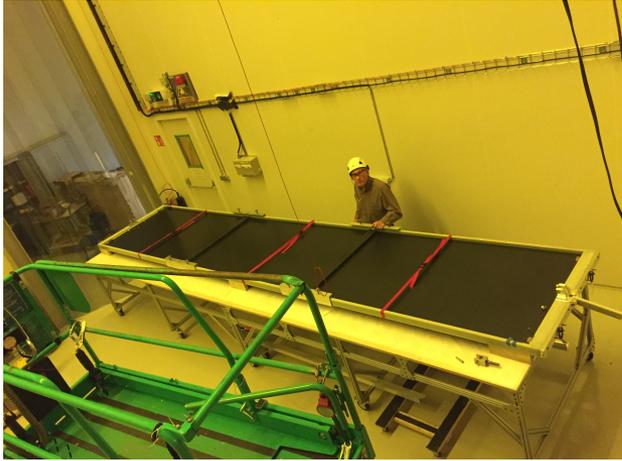


APA #3 at Daresbury Lab



Wiring and tension measurements completed

CPA/FC assembly #1



TPC elements to be integrated

- APAs:
 - #3 fully wired @DL; expected at CERN 8 January
 - #4 @PSL 50% done; expected at CERN mid February
 - On track to have all 6 @ CERN by second half in April
- CPAs, FCs: all available @ CERN
- End Walls: all available @ CERN
- Electronics (CE/WIB/SSP) for full PD-SP in construction

DAQ

- Successfully taken Cold Box data for photon detector
- Online monitoring for PDS data improved working with PDS experts
- Awaiting fixes to WIB firmware, working with CE experts on that
- Run Control improved and stable
- First data transferred to EOS via 40 Gbps link
- DAQ storage performance optimisation ongoing
- Overall on track

ProtoDUNE-SP is doing excellent progress

On track to data taking with a full TPC in 2018

Congratulations and many thanks to a wonderful team

Happy End of Year Holidays to all of you!